

AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to Fig. 16. This sheet which includes Figs. 16, replaces the original sheet including Figs. 16. In Fig. 16, the legend —Prior Art— has been added.

Attachments: Replacement Sheet (Fig. 16)

REMARKS

Pending Claims

Claims 1-9, 12 and 13 are pending in this application. Claims 1-9 and 13 have been amended. No new matter has been added.

Drawings

Figure 16 has been amended to include the legend "Prior Art" in order to overcome the objection.

Specification

Claims 1-9, 12 and 13 are objected to because of minor informalities, which have been corrected by amendment of the claims.

Claim Rejections under 35 U.S.C. §112

Claims 1-2, 7-9 and 12 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The language regarding the curve of the thermal distribution has been changed to include language finding antecedent support in the specification, mainly an approximately crescent shape of the recording magnetic domain. Accordingly, the rejection should be overcome.

Claim Rejections under 35 U.S.C. §§102 and 103

Claims 1 and 12 have been rejected under 35 U.S.C. §102(b) as being

anticipated by JP 11-096608, which is equivalent to US Patent No. 6,317,280 to Nakajima et al. (Nakajima); and claims 1 and 12 have been rejected under 35 U.S.C. §102(b) as being anticipated by the acknowledged prior art of Figures 1-3.

Claim 2 has been rejected under 35 U.S.C. §103(a) as being unpatentable over either the acknowledged prior art of figures 1-3 or Nakajima, further considered with Lee et al.

Claim 2 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Novotny et al. considered with either Lee et al. or Luecke.

Claim 7 has been rejected under 35 U.S.C. §103(a) as being unpatentable over the art as applied to claim 2 and further in view of JP 05-298737.

Claims 8-9 have been rejected under 35 U.S.C. §103(a) as being unpatentable over the art as applied to claim 2 and further in view of Yonezawa et al.

Claims 3-5 and 13 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Belser et al. further considered with either Lee et al. or Luecke.

Applicants request reconsideration of the rejections in view of the amendments made to the claims and for the following reasons.

Claims 1-3 have been amended to include an approximately circular optical spot recording head that forms an approximately crescent shape recording magnetic domain. According to the thermo-magnetic recording of the present invention, the magnetization direction in the approximately circular region is determined at every optical pulse irradiation in optical pulse magnetic field modulation recording such that the recording magnetic domain becomes approximately crescent. As a result, the inventors have determined that with this crescent shape, a normal magnetic flux detecting means with sensitivity distribution being approximately linearly shaped, the

recorded magnetic domain is different in shape from the magnetic flux detecting means, therefore giving rise to a problem of deterioration in the reproducing performance of the thermo-magnetic recording system having an approximately circular optical spot recording head. See page 5, lines 14-25 of the specification.

Claims 1-3 have also been amended to include elements of the invention that are shown in Figs. 10, 11 and 12, for example. these include a (first) swing arm 105 for an optical recording head and a (second) swing arm 102 for the magnetic flux detecting element. Further, the claims have been amended to include that the distance between a rotation center of the recording medium and the swing arm axis for the optical head and the distance between the rotation center of the recoding medium and the swing arm axis for magnetic flux detection element are the same.

As a result of the claimed distances being the same, the direction (so called yaw angle) of the optical recording element and the magnetic flux detection element concerned with the track coincide with each other at each radial position to enhance reproducing efficiency for the approximately crescent shape recording magnetic domain when using a magnetic flux detection element with a sensitivity distribution that is approximately linear.

Nakajima does not disclose the approximately crescent shape recording magnetic domain that is formed by the approximately circular optical spot when the recording medium is heated, as claimed by Applicants in claims 1-3. The magnetic wall of the magnetic domain in Nakajima is formed in a track traveling direction (circumferential direction), which coincides with the shape of the recording magnetic head (magnetic distribution). Specifically, in Nakajima, the reproducing head is disposed in parallel with the recording magnetic head, and the direction of the

recording magnetic domain and the direction of the reproducing head coincide with each other as shown in Figures 7 and 11, for example. Thus, although Nakajima discloses thermal-assisted magnetic recording, the reference does not disclose or suggest heating partially the magnetic recording layer while applying a , magnetic field to the vicinity of an area heated by the recording head to form an approximately crescent shape recording magnetic domain in which a direction of the magnetic wall aligns with a direction of thermal distribution, as claimed by Applicants.

As amended, the claims are patentable over the Nakajima reference. Further, neither Lee nor Luecke overcomes the deficiencies in the Nakajima reference with respect to the invention as now claimed in claims 1-3. Accordingly, the rejection of claim 2 under 35 U.S.C. §103(a) as being unpatentable over either the acknowledged prior art of figures 1-3 or Nakajima, further considered with Lee et al should be withdrawn.

Belser is cited against independent claim 3 as the primary reference. As amended, however, claim 3 includes a first swing arm for the recording head and a second swing arm for the magnetic flux detecting element which are not shown by the reference. Therefore, Belser does not disclose the relationship that is claimed in claim 3 in which the distance between a rotation center of the recording medium and an axis of the first swing arm and a distance between the rotation center of the recording medium and an axis of the second swing arm are the same.

Novotny is not available as a reference because the present application has an international filing date of March 1, 2000, which pre-dates the filing date of the provisional application relied upon in Novotny of July 28, 2000. As set forth in MPEP 1893.03(b), The Filing Date of a U.S. National Stage Application, "an

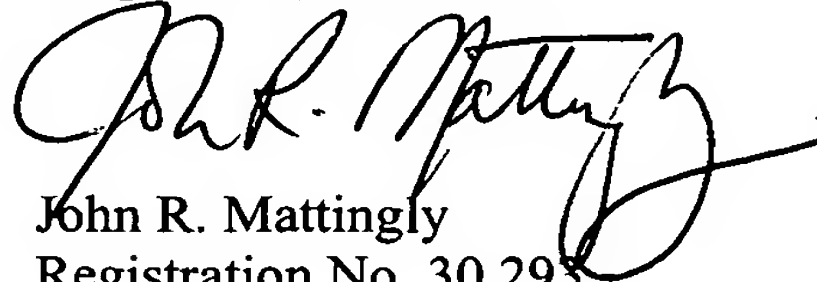
international application designating the United States shall have the effect, from its international filing date under Article 11 of the treaty, of a national application for patent regularly filed in the Patent and Trademark Office except as otherwise provided in section 102(e) of this title." Accordingly, the rejection under 35 U.S.C. § 103 of claims 2 and 7-9 as based on Novotny should be withdrawn.

The remainder of the art is applied to the dependent claims. Each of the dependent claims is patentable over the references of record at least for depending from a base claim asserted to be allowable for the foregoing reasons. Therefore the rejections under 35 U.S.C. §103 should be withdrawn.

CONCLUSION

In view of the foregoing, Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,


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CERTIFICATE OF MAILING

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